TA-F830ES

SERVICE MANUAL

Germany Model

SPECIFICATIONS

Daten	Meßbedingungen	Meßwerte
Sinus-Dauerleistung (beide Kanäle gleichzeitig angesteuert)	4 Ohm, 20 Hz – 20 kHz Klirrgrad 0,008%	180 W + 180 W (DIN: 210 W + 210 W)
	6 Ohm, 20 Hz – 20 kHz Klirrgrad 0,006%	150 W + 150 W (DIN: 170 W + 170 W)
	8 Ohm, 20 Hz – 20 kHz Klirrgrad 0,004%	120 W + 120 W (DIN: 145 W + 145 W)
Leistungsbandbreite (IHF)	4 Ohm, THD 0,04%	10 Hz – 100 kHz bei 90 W
	8 Ohm, THD 0,04%	10 Hz – 100 kHz bei 60 W
Dynamik-Kopfraum ('78 IHF)	4 Ohm	2 dB
	8 Ohm	1,2 dB
Gesamtklirrgrad	8 Ohm, bei 10 W Ausgangsleistung	0,002%
Intermodulationsverzerrung (IM) 60 Hz: 7 kHz = 4: 1	4 Ohm, bei Nennausgangsleistung	0,008%
	6 Ohm, bei Nennausgangsleistung	0,006%
	8 Ohm, bei Nennausgangsleistung	0,004%
Dämpfungsfaktor	8 Ohm, 1 kHz	100
Eigenrauschen	Netzwerk A	unter 115 µV

Daten	Meßbedingungen			Meßwerte
Frequenzgang	PHONO MM			RIAA-Entzerrungskurve ±0,2 dB
	TUNER, CD, TAPE 1, 2, 3, DIRECT IN			2 Hz – 200 kHz $^{+0}_{-3}$ dB
Eingangsempfindlichkeit	PHONO	MC	3 Ohm	0,17 mV, 33 Ohm
			40 Ohm	0,17 mV, 100 Ohm
		MM		2,5 mV, 50 kOhm
	TUNER, CD, DIRECT IN, TAPE 1, 2, 3, ADAPTOR IN			150 mV, 50 kOhm
S/R (Netzwerk) * 78 (IHF)	PHONO	MC		78 dB*, 70 dB (A)
		MM		80 dB*, 87 dB (A)
	TUNER, CD, DIRECT IN, TAPE 1, 2, 3, ADAPTOR IN			84 dB*, 105 dB (A)

— continued on next page —

INTEGRATED STEREO AMPLIFIER

SONY®

Daten	Meßbedingungen	Meßwerte
Ausgangsimpedanz	REC OUT 1, 2, 3, ADAPTOR OUT	150 mV, 1 kOhm
	PRE OUT	1,0 V, 100 Ohm
	HEADPHONES	25 mW (bei 8 Ohm) Für Kopfhörer niedriger oder hoher Impedanz
Klangregler	BASS (100 Hz)	$^{+4}_{-5,5}$ dB (Übernahmefrequenz 200 Hz)
		$^{+6}_{-7}$ dB (Übernahmefrequenz 400 Hz)
	TREBLE (10 kHz)	$^{+7}_{-8}$ dB (Übernahmefrequenz 3 kHz)
		$^{+4}_{-5}$ dB (Übernahmefrequenz 6 kHz)
SUBSONIC-Filter	—	Dämpfung 6 dB/Oktave unter 15 Hz

Allgemeine Daten

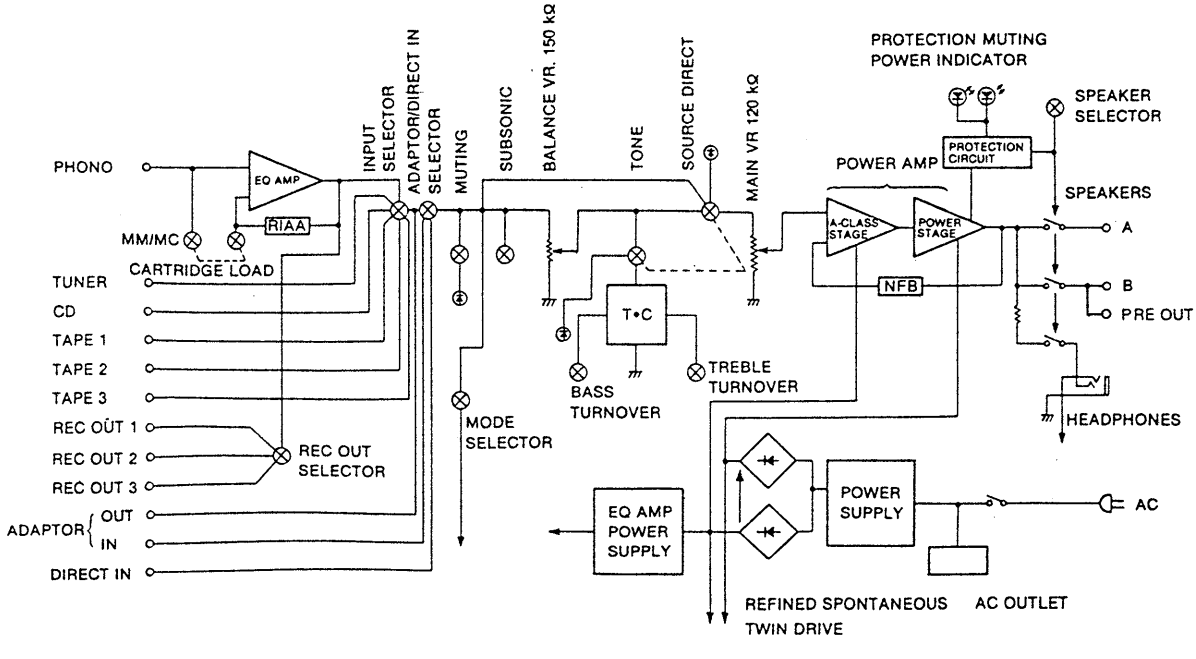
System: Vorverstärkerteil: rauscharmer FET-Verstärker, Entzerrerverstärker ohne Rückkopplung, passive Klangregler
SUBSONIC-Filter: Leistungsverstärkerteil: reinkomplementäre Gegentaktstufe ohne Transformatoren und Kondensatoren
Stromversorgung: 220 V Wechselspannung, 50/60 Hz
Leistungsaufnahme: 420 W
Zubehör-Steckdose: 1 × geschaltet, max. 100 W
Abmessungen: ca. 470 × 170 × 435 mm (B/H/T) einschl. vorspringender Teile und Bedienungselemente
Gewicht: ca. 24,5 kg netto
Mitgeliefertes Zubehör: Schrauben (8)

Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

SAFETY-RELATED COMPONENT WARNING!!

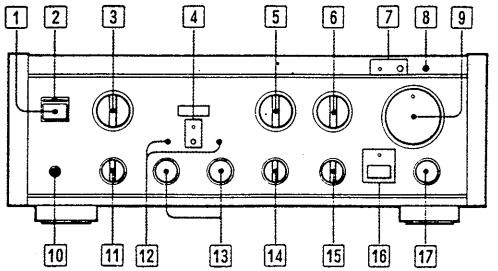
COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

BLOCK DIAGRAM



SECTION 1
GENERAL

Vorderseite



[1] **Netzschalter (POWER)**

[2] **Einschalt/Bereitschafts-Indikator**
Während der kurzen Wartephase unmittelbar nach dem Einschalten des Geräts leuchtet dieser Indikator rot. Sobald der Verstärker betriebsbereit ist, leuchtet der Indikator dann grün.
Spricht die eingebaute Schutzschaltung infolge eines Kurzschlusses am Lautsprecherausgang oder an einem Eingang an, so leuchtet der Indikator rot.
Ziehen Sie in diesem Fall den Netzstecker aus der Wandsteckdose, und überprüfen Sie die Anschlüsse der Komponenten und Lautsprecher.

[3] **Lautsprecherwähler (SPEAKERS)**
Zur Wahl des Lautsprecherpaares A, B oder A + B.
Zur Wahl des an den PRE OUT-Ausgängen angeschlossenen Verstärkers oder der Aktivlautsprecher stellen Sie den Wähler auf B/PRE OUT.
Zum Hören über Kopfhörer stellen Sie den Wähler auf OFF.

[4] **Klangschalter (TONE) und Indikator**
Ist dieser Schalter gedrückt, so leuchtet der rote Indikator, und der Klang kann mit den BASS- und TREBLE- Reglern beeinflußt werden.

[5] **Adapter/Direkteingangs-Schalter (ADAPTER/DIRECT IN)**
In der NORMAL-Position kann die Signalquelle mit dem INPUT SELECTOR-Wähler gewählt werden. Zur Wahl des Eingangssignals, das über das an den ADAPTER-Buchsen angeschlossene Zusatzgerät (z.B. Graphic-Equalizer) geleitet wird, stellen Sie den Wähler auf ADAPTER. Zur Wahl des an die DIRECT IN-Buchsen angeschlossenen Gerätes stellen Sie den Schalter auf DIRECT IN.
Hinweis
Die an den REC OUT-Ausgängen anliegenden Signale sind bei auf ADAPTER gestelltem Schalter nicht über das Zusatzgerät geleitet worden.
Die an die DIRECT IN-Buchsen angeschlossene Signalquelle kann nicht über das Zusatzgerät geleitet und auch nicht an den REC OUT-Buchsen ausgegeben werden.

[6] **Eingangswähler (INPUT SELECTOR)**
Zur Wahl der gewünschten Signalquelle.

[7] **Dämpfungsschalter (MUTING) und Indikator**
Lassen Sie diesen Schalter normalerweise ausgerastet (auf OFF).
Um die Lautstärke um 20 dB zu verringern, drücken Sie den Schalter (die Ausgangsspannung verringert sich auf 1/10).

[8] **SUBSONIC-Filterschalter**
Bei gedrücktem Schalter werden unerwünschte Tiefstfrequenzen unter 15 Hz, die Intermodulationsverzerrungen verursachen, bedämpft.

[9] **Lautstärkeregler (ATTENUATOR)**
Zur Einstellung der Lautstärke.

[10] **Kopfhörerbuchse (HEADPHONES) (Stereo-Klinkenbuchse)**

[11] **Betriebsartenwähler (MODE)**
STEREO: Zur Wiedergabe einer Stereo-Signalquelle.
MONO: Zur Wiedergabe einer Mono-Signalquelle.

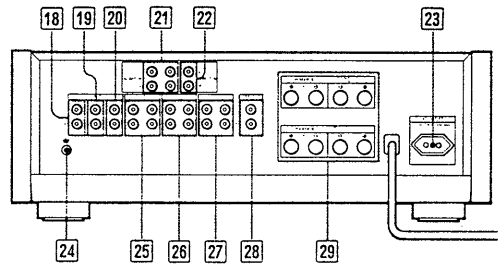
[12] **Übergangsfrequenzwähler (TURNOVER)**
Zur Wahl der Übergangsfrequenz.

[13] **Baß- und Höhenregler (BASS, TREBLE)**
Die Baß- und Höheneinstellung ist nur bei gedrücktem TONE-Schalter möglich.

[14] **Aufnahmeausgangswähler (REC OUT SELECTOR)**
Zur Wahl der Signalquelle, die über die REC OUT-Ausgänge (an der Geräterückseite) aufgenommen werden soll.

[15] **Tonabnehmer-Impedanzwähler (CARTRIDGE LOAD)**
Stellen Sie diesen Wähler entsprechend des Plattenspieler-Tonabnehmertyps ein:
MM: Bei einem Tonabnehmer mit Magnetsystem.
MC: Bei einem dynamischen Tonabnehmer.
40 Ω: Für Tonabnehmer mit einer Impedanz von 40 Ohm oder mehr.
3 Ω: Für Tonabnehmer mit einer Impedanz von 3 bis 40 Ohm.

Rückseite



Zum Anschluß siehe unter „Systemanschluß" auf Seite 4.

[16] **Eingangssignal-Direktschalter (SOURCE DIRECT) und Indikator**
Bei gedrücktem Schalter leuchtet der rote Indikator, und die Schaltkreise von TONE-Schalter, SUBSONIC-Filterschalter, BALANCE-Regler sowie MODE-Schalter werden übergangen.
Der Indikator des TONE-Schalters leuchtet dann auch bei gedrücktem TONE-Schalter nicht.

[17] **Balanceregler (BALANCE)**
Zur Einstellung der Balance zwischen linkem und rechtem Lautsprecher.

[18] **PHONO-Eingänge**

[19] **TUNER-Eingänge**

[20] **CD-Eingänge**

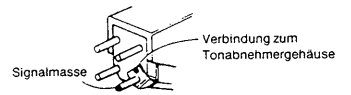
[21] **Adapter-Ein/Ausgänge (ADAPTOR IN/OUT)**
Die mit dem INPUT SELECT-Wähler an der Vorderseite des Gerätes gewählten Signale liegen an den OUT-Buchsen an und werden über die IN-Buchsen zurückgeleitet.

[22] **Direkteingänge (DIRECT IN)**
Hinweis
Die an die DIRECT IN-Buchsen angeschlossene Signalquelle wird nicht den REC OUT-Ausgängen zugeleitet und kann daher nicht aufgenommen werden.

[23] **Zubehör-Steckdose (AC OUTLET)**
Zur Stromversorgung von anderen Audio-Komponenten, deren Leistungsaufnahme 100 W nicht überschreitet.

[24] **Erdungsanschluß (⏚)**
Um Brummen zu vermeiden, schließen Sie den Erdungsdraht des Plattenspielers an diesen Anschluß an. Tritt danach immer noch Brummen auf, so verbinden Sie diesen Erdungsanschluß mit einem Erdungsstab direkt mit der Erde.

Hinweis
Bei einigen Magnetsystem-Tonabnehmern (MM) ist die Signalmasse mit dem Tonabnehmergehäuse verbunden. Wird ein solcher Tonabnehmer in einen Tonabnehmerkopf aus Metall eingesetzt, so kommt es über den Tonarm zu einem Stromfluß, der Brummen verursachen kann. Trennen Sie in einem solchen Fall den Tonabnehmer-Erdungsdraht vom f-Anschluß des Verstärkers oder die Verbindung von Tonabnehmergehäuse und Signalmasse ab.



[25] [26] [27] **Ein-/Ausgänge für Tonband 1, 2, 3 (TAPE RECORDER 1, 2, 3)**
Aufnahme-Ausgänge (REC OUT): Zum Anschließen an die Band-Eingänge des Cassettendecks.
Wenn ein HiFi-Videorecorder angeschlossen werden soll, verbinden Sie die Audio-Line-Eingänge des Videorecorders mit diesen Ausgängen.
Band-Eingänge (TAPE): Zum Anschließen an die Aufnahme-Ausgänge des Cassettendecks.
Zur Tonwiedergabe eines HiFi-Videorecorders, eines Bildplattenspielers oder eines TV-Tuners verbinden Sie die Audio-Line-Ausgänge dieser Geräte mit diesen Eingängen.

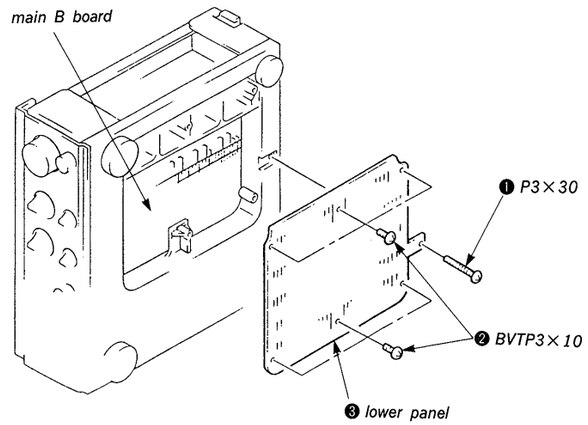
[28] **Vorverstärkerausgänge (PRE OUT)**
Zum Anschluß eines Leistungsverstärkers oder Aktivlautsprecher.

[29] **Lautsprecheranschlüsse (SPEAKER)**
Zum Anschließen eines oder zweier Lautsprecherpaare. Am SPEAKERS-Wähler an der Vorderseite kann das gewünschte Lautsprecherpaar, A, B oder A + B, gewählt werden.

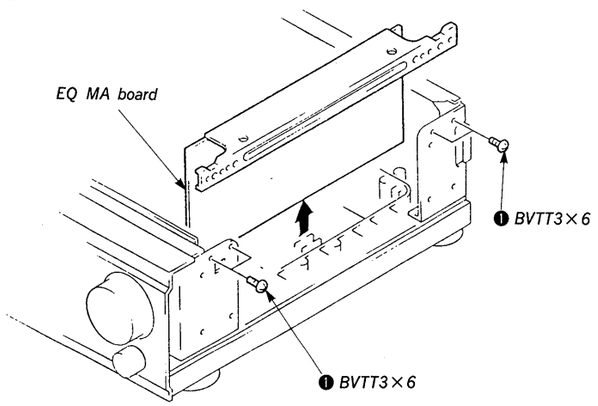
SECTION 2
DISASSEMBLY

NOTE : Follow the disassembly procedure in the numerical order given.

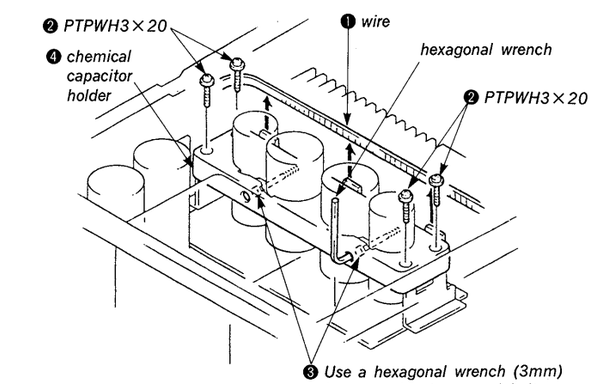
MAIN B BOARD INSPECTION



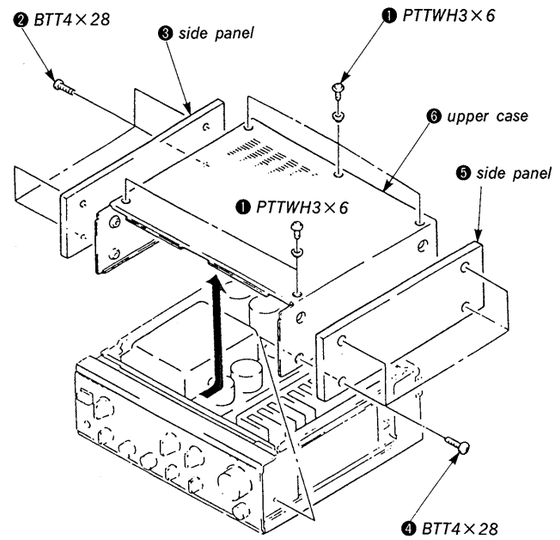
EQ MA BOARD INSPECTION



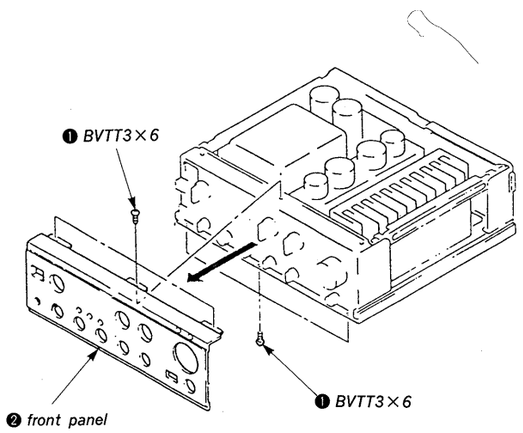
CHEMICAL CAPACITOR HOLDER


❷ PTPWH3×20
❹ chemical capacitor holder
❶ wire
hexagonal wrench
❷ PTPWH3×20
❸ Use a hexagonal wrench (3mm) to loosen the hexagonal bolts.
Note : Do not forget to re-attach the bolts when re-attaching the holder.

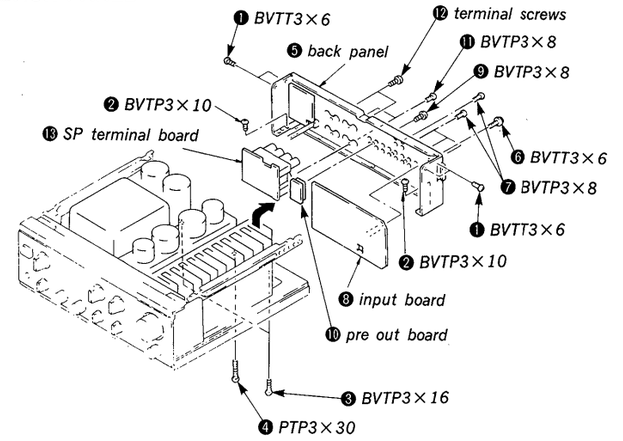
CASE



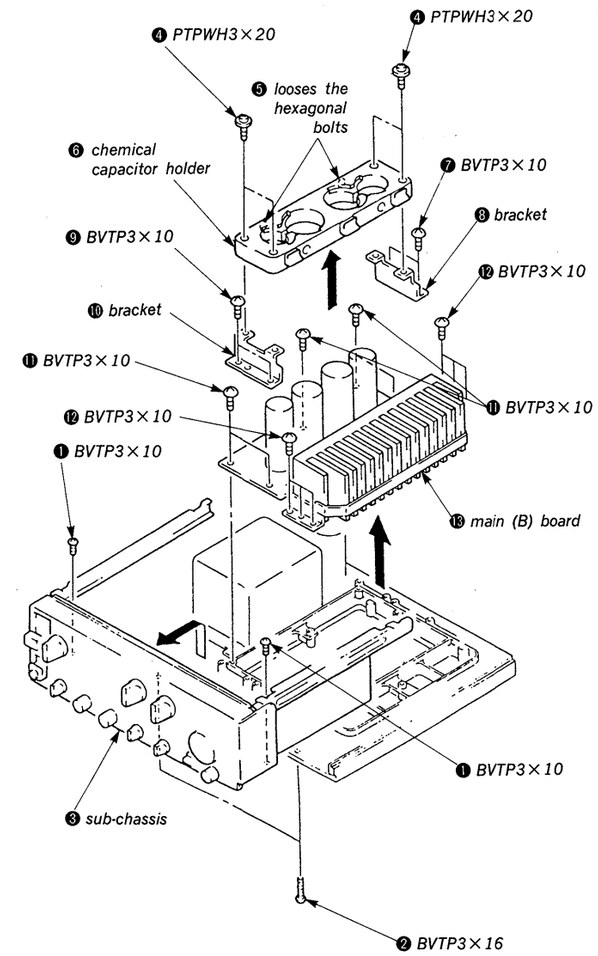
FRONT PANEL



BACK PANEL

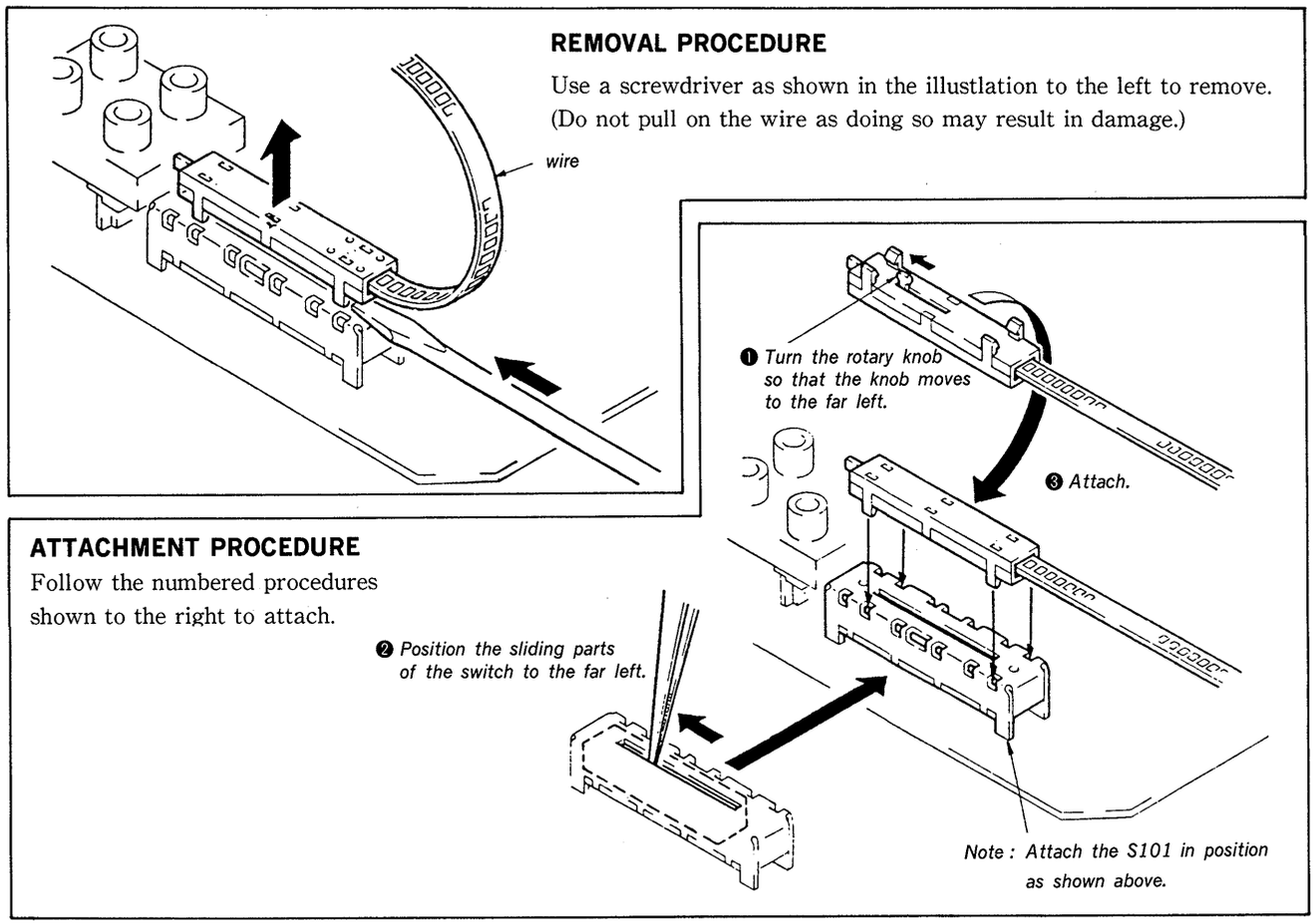


MAIN (B) BOARD



SECTION 3
REMOVAL SWITCH BLOCK

Note : Follow the disassembly procedure in the numerical order given.


REMOVAL PROCEDURE
Use a screwdriver as shown in the illustlation to the left to remove. (Do not pull on the wire as doing so may result in damage.)
wire
❶ Turn the rotary knob so that the knob moves to the far left.
❷ Position the sliding parts of the switch to the far left.
❸ Attach.
ATTACHMENT PROCEDURE
Follow the numbered procedures shown to the right to attach.
Note : Attach the S101 in position as shown above.

SECTION 4
ELECTRICAL ADJUSTMENTS

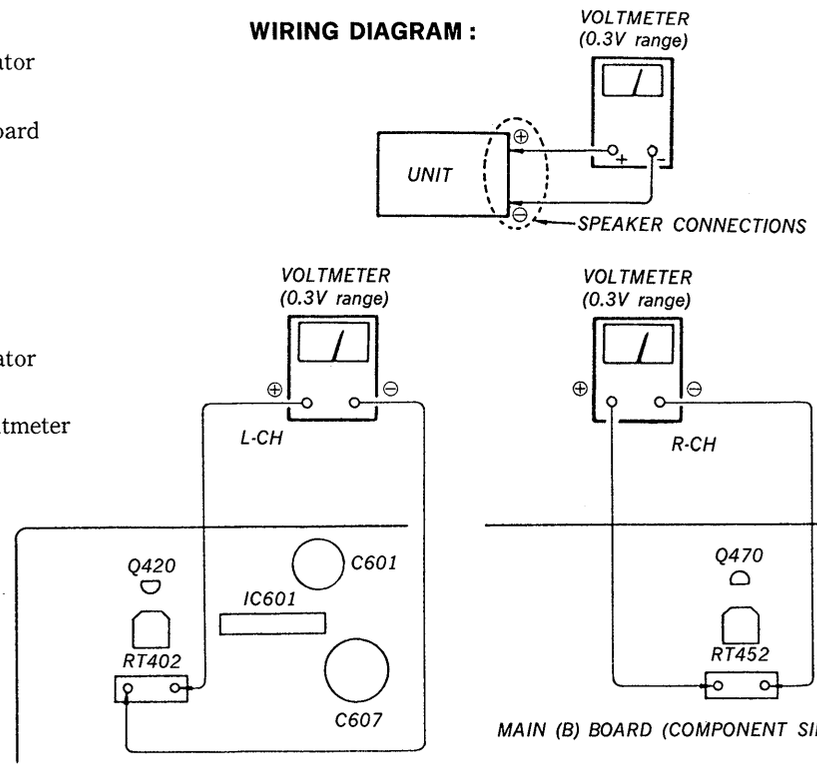
OFFSET ADJUSTMENT

1. With no signal input, turn the attenuator counter-clockwise as far as possible.
2. Adjust RT401 and 451 on the main board so that the voltmeter reads 0V.

BIAS ADJUSTMENT

1. With no signal input, turn the attenuator counter-clockwise as far as possible.
2. Adjustment RT402 and 452 so the voltmeter reads 15mV.

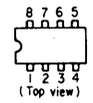
WIRING DIAGRAM :



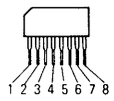
SECTION 5
DIAGRAMS

5-1. SEMICONDUCTOR LEAD LAYOUTS

NE5534P



μPC1237HA



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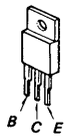
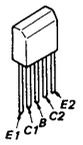
2SA1383
2SC2275
2SC3514
2SC3514-Q

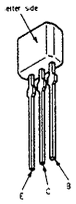


2SA995F

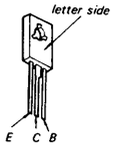


2SA1138
2SD774-3

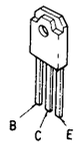
2SA1175HFE
2SC2785HFE



2SA1407D
2SB731
2SC3601



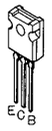
2SA1492
2SC3856



2SB716-D
2SC1841-PA
2SD756

2SC945-P
2SD756

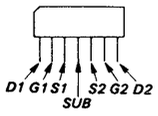
2SC3423



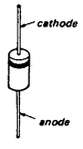
2SK147

2SK246-GR2

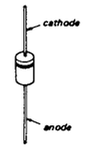
2SK389-GR



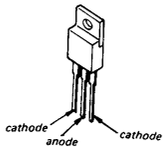
10E2N
HZ2CLL
US1060M



30DF2



CTU-22R



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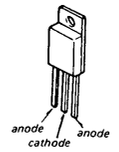
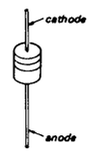
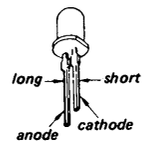


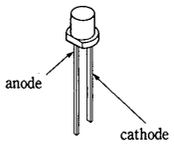
HZS6B1L
HZS6C3L
HZS9B2L



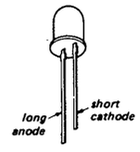
SEL1810A



SEL2213C



SEL2510C



TA-F830ES TA-F830ES

TA-F830ES TA-F830ES

● Semiconductor Location

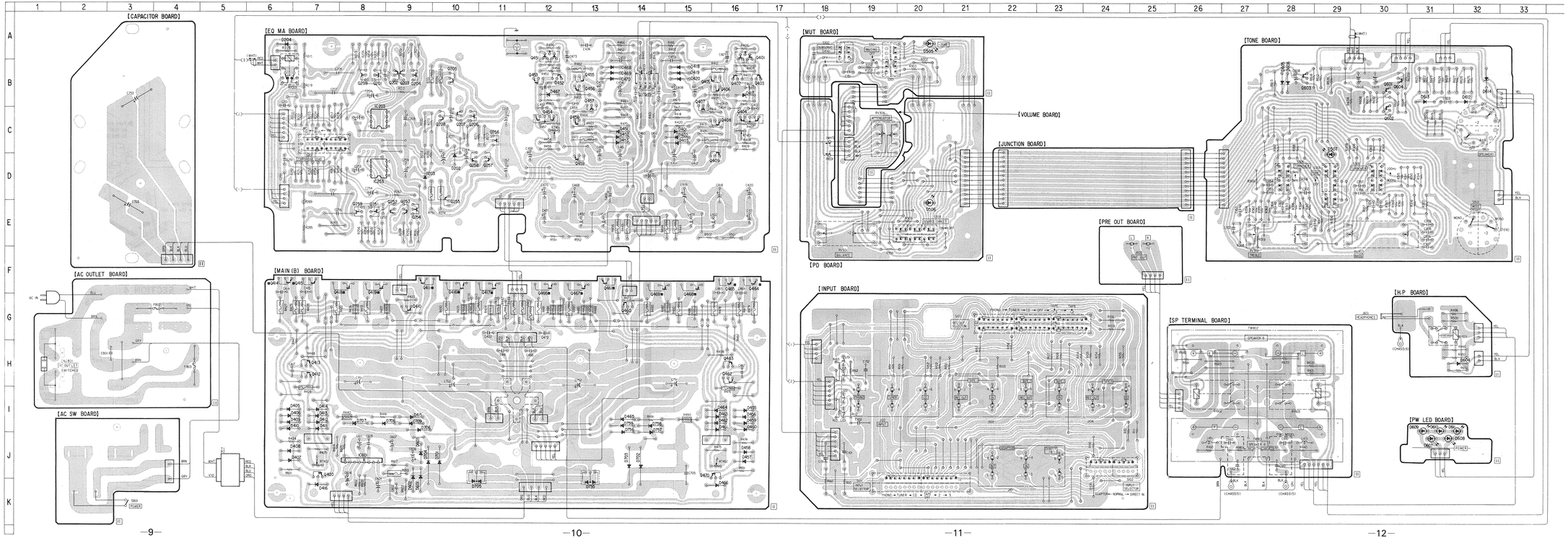
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D202	D-10	D755	K-13	Q470	J-16
D203	D-9	D756	I-14	Q601	B-30
D204	A-6	D757	I-14	Q602	B-30
D401	C-15	D758	I-14	Q603	B-28
D402	C-15	D759	I-14	Q604	B-30
D403	C-15				
D405	I-6	IC203	C-8		
D406	I-6	IC253	D-8		
D407	J-6	IC601	J-8		
D408	J-6				
D409	I-6	Q201	B-8		
D410	I-6	Q202	B-9		
D411	I-7	Q203	B-9		
D412	I-6	Q204	B-9		
D413	I-6	Q205	B-10		
D414	I-6	Q206	C-10		
D415	I-9	Q207	C-10		
D416	K-7	Q208	C-10		
D417	B-16	Q209	B-8		
D418	B-15	Q251	E-8		
D419	B-15	Q252	E-9		
D420	B-15	Q253	E-9		
D451	C-14	Q254	E-9		
D452	C-14	Q255	D-10		
D453	C-14	Q256	C-11		
D455	I-16	Q257	D-11		
D456	I-16	Q258	D-10		
D457	I-16	Q259	E-8		
D458	J-16	Q401	A-16		
D459	I-16	Q402	B-16		
D460	I-16	Q403	B-17		
D461	I-16	Q404	C-16		
D462	I-16	Q405	B-16		
D463	I-16	Q406	B-16		
D464	I-16	Q407	C-15		
D465	I-14	Q408	C-16		
D466	K-16	Q409	C-16		
D467	B-12	Q410	G-9		
D468	B-14	Q411	F-9		
D469	B-14	Q412	H-7		
D470	B-14	Q413	H-7		
D505	A-20	Q414	F-6		
D506	E-20	Q415	F-7		
D507	C-29	Q416	F-10		
D601	J-9	Q417	F-11		
D602	J-9	Q418	F-8		
D603	J-9	Q419	F-8		
D604	H-32	Q420	J-7		
D605	B-28	Q451	A-12		
D606	B-28	Q452	B-12		
D607	J-31	Q453	B-12		
D608	J-31	Q454	C-12		
D609	I-31	Q455	B-13		
D610	I-31	Q456	B-13		
D611	I-32	Q457	C-13		
D612	B-32	Q458	C-13		
D613	B-31	Q459	D-13		
D614	B-32	Q460	G-14		
D701	J-10	Q461	F-13		
D702	J-14	Q462	H-16		
D703	J-14	Q463	H-16		
D704	J-9	Q464	F-16		
D705	K-10	Q465	F-16		
D706	I-9	Q466	F-12		
D707	I-8	Q467	F-13		
D708	I-8	Q468	F-15		
D709	I-9	Q469	F-14		

Note:

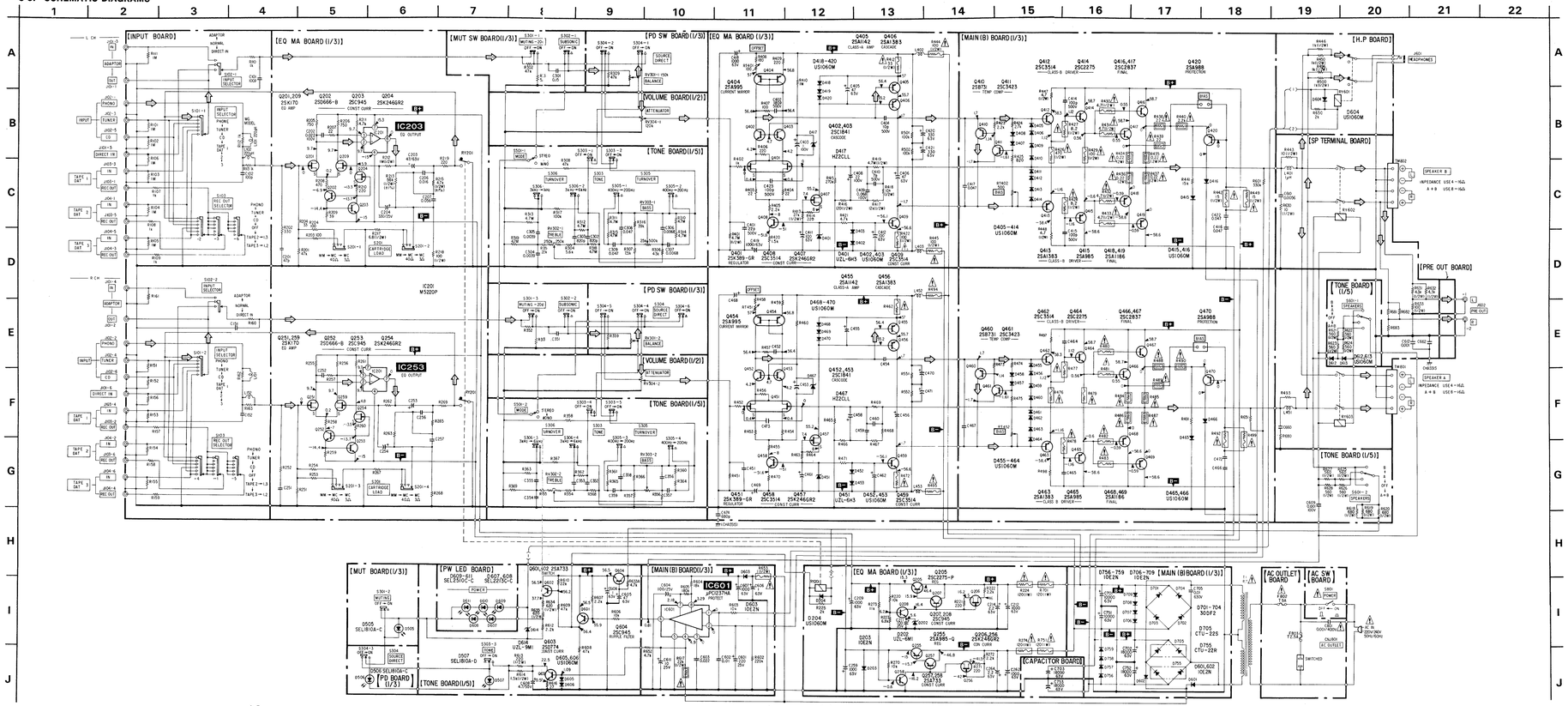
- ● ○——: parts extracted from the component side.
- ● ■ : parts mounted on the conductor side.

5-2. PRINTED WIRING BOARDS

• See page 7 for Semiconductor Lead Layouts.



5-3. SCHEMATIC DIAGRAMS

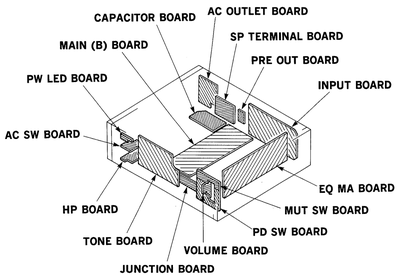


Note:

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- Components for right channel have same values as for left channel. Reference numbers are coded from 100–400 and 600.
- : nonflammable resistor.
- : fusible resistor.
- : B+ Line
- : B– Line
- : adjustment for repair.
- Voltage is dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  : PHONO

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

5-4. CIRCUIT BOARDS LOCATION



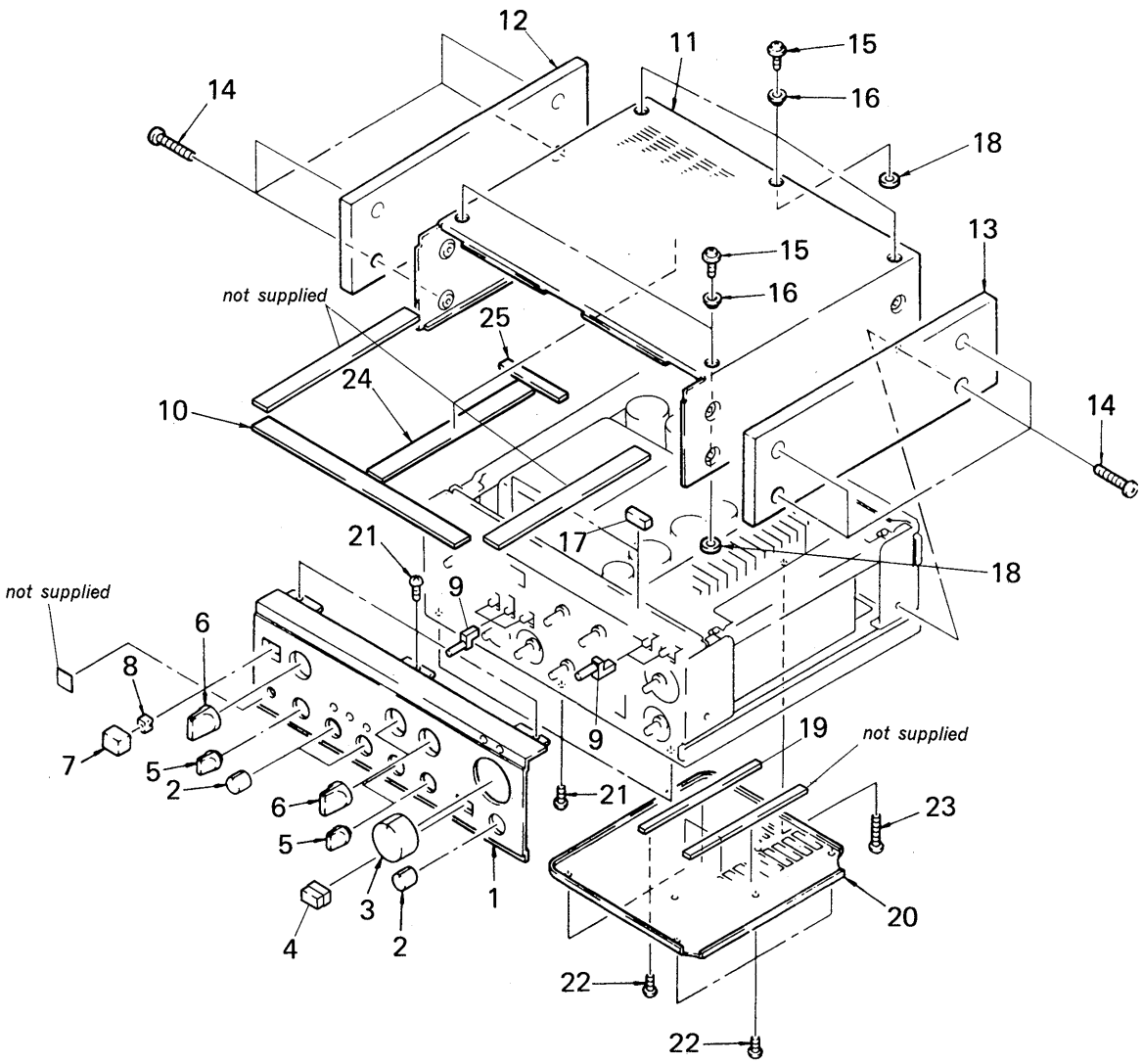
SECTION 6
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts Color

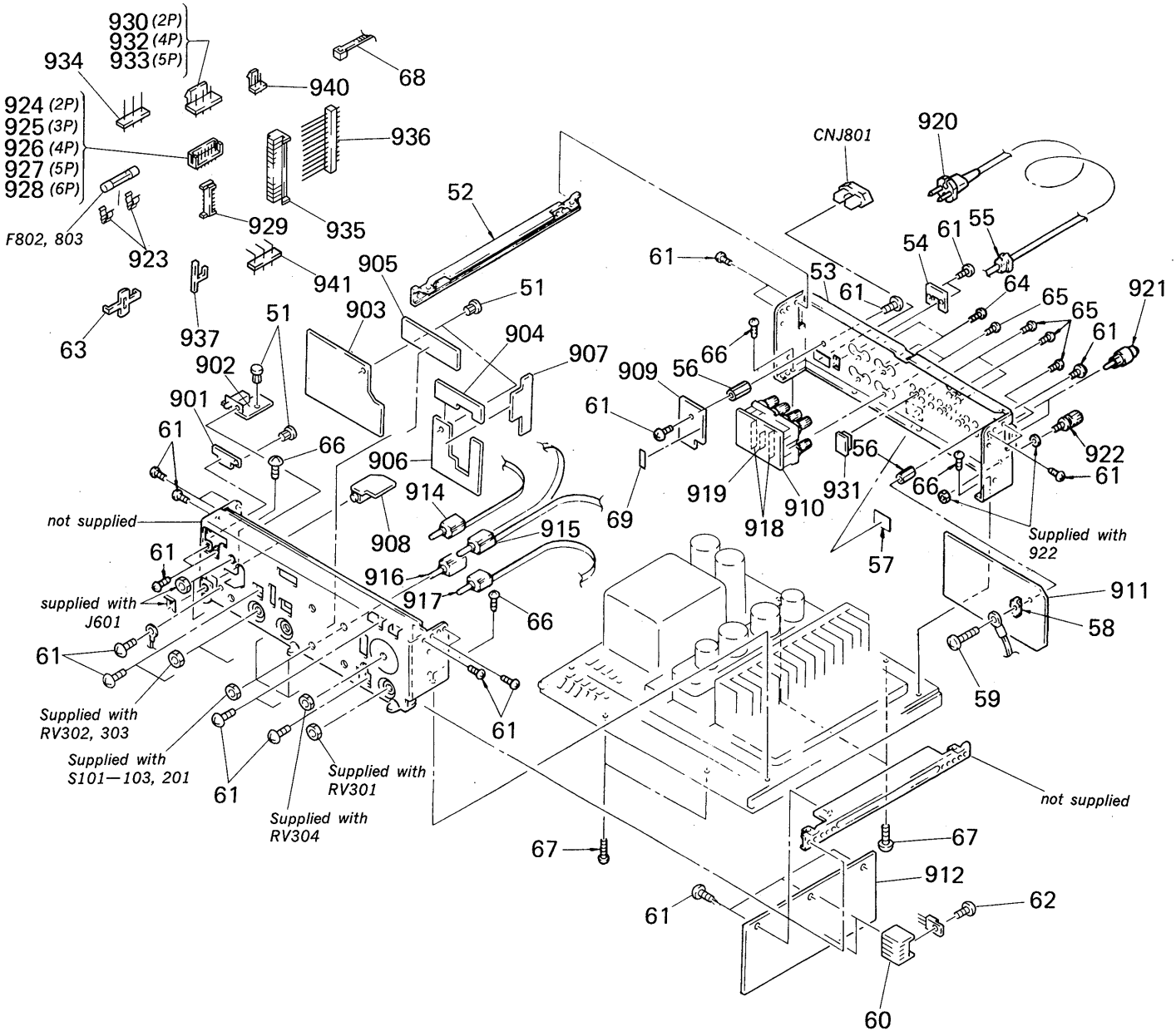
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-1. CASE ASSEMBLY



No.	Part No.	Description	Remarks
1	A-4317-917-A	PANEL ASSY, FRONT	
2	4-923-871-01	KNOB (ROUND-22)(BASS/TREBLE/BALANCE)	
3	4-923-870-01	KNOB (ROUND-55)(ATTENUATOR)	
4	4-917-460-21	KNOB (SOURCE DIRECT)	
5	4-923-869-01	KNOB (FLAT-22) (MODE/REC OUT SELECTOR/CARTRIDGE LOAD)	
6	4-923-868-01	KNOB (FLAT-32)(INPUT SELECTOR)	
7	4-908-856-01	KNOB, SQUARE (POWER)	
8	4-864-307-00	RING	
9	4-923-879-01	BUTTON (DIA.4) (TURNOVER/TONE/MUTING/SUBSONIC)	
10	*4-929-218-01	DAMPER	
11	4-908-868-01	CASE	
12	X-4885-951-1	PANEL (LEFT) ASSY, SIDE	
13	X-4885-952-1	PANEL (RIGHT) ASSY, SIDE	
14	4-885-979-21	SCREW (4X28)	
15	4-886-821-01	SCREW, S TIGHT, +PTTWH 3X6	
16	3-576-298-11	ESCUTCHEON	
17	*4-908-872-01	CUSHION	
18	3-311-623-21	SPACER	
19	4-916-782-11	SHEET	
20	*4-921-428-01	PLATE, BOTTOM	
21	7-682-547-09	SCREW +B 3X6	
22	7-685-647-79	SCREW +BVTP 3X10 TYPE2 SLIT	
23	7-685-153-19	SCREW +P 3X30 TYPE2 SLIT	
24	4-916-782-21	SHEET (A)	
25	*4-916-761-01	SHEET, DAMPER	

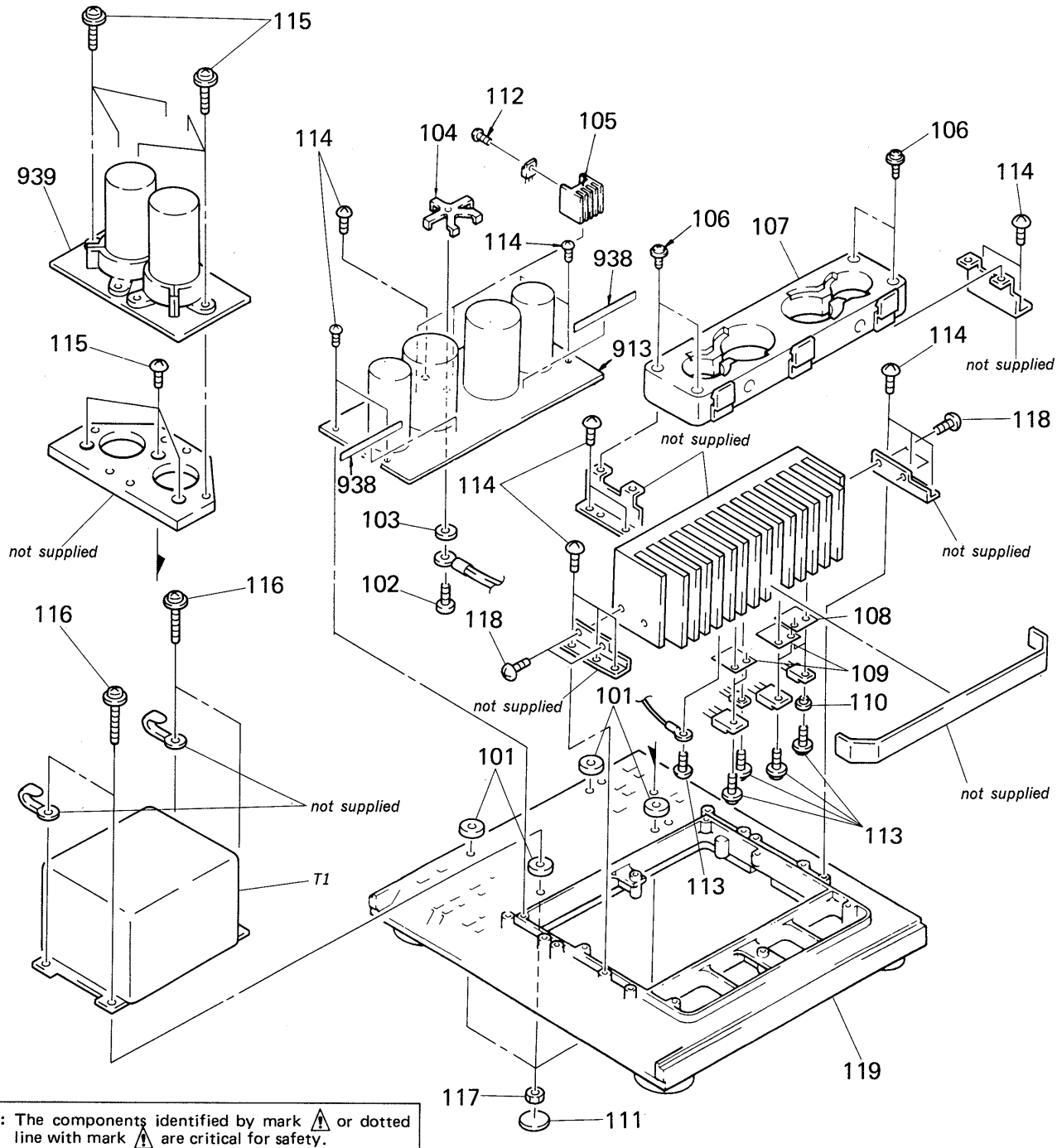
6-2. FRONT CHASSIS AND BACK PANEL ASSEMBLIES



No.	Part No.	Description	Remarks
51	4-812-134-00	RIVET NYLON, 3.5	
52	*4-908-861-31	BRACKET, EQ	
53	*4-923-842-61	PANEL, BACK	
54	*4-923-873-01	BRACKET, CORD STOPPER	
55	2-352-626-01	BUSHING, CORD	
56	*2-280-622-51	SUPPORT (M3), HEXAGON	
57	*4-929-249-01	LABEL, MODEL NUMBER	
58	*4-835-639-00	PLATE, GROUND	
59	7-682-149-15	SCREW, TR	
60	*4-921-402-01	HEAT SINK	
61	7-682-547-09	SCREW +B 3X6	
62	7-682-548-09	SCREW +B 3X8	
63	*4-923-814-01	PLATE, CONNECTION	
64	3-704-242-11	SCREW, TERMINAL, + BVTP CLAW	
65	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
66	7-685-647-79	SCREW +BVTP 3X10 TYPE2 SLIT	
67	7-685-650-79	SCREW +BVTP 3X16 TYPE2 SLIT	
68	3-655-653-21	BAND (TAITON), BINDING	
69	3-701-947-18	LABEL (T5A), FUSE	
901	*1-628-959-11	PC BOARD, PW LED	
902	*1-628-963-11	PC BOARD, AC SW	
903	*A-4410-872-A	MOUNTED PCB, TONE	
904	*1-628-954-11	PC BOARD, MUT	
905	*1-628-957-11	PC BOARD, JUNCTION	
906	*1-628-955-11	PC BOARD, PD	
907	*1-628-953-11	PC BOARD, VOLUME	
908	*1-628-958-11	PC BOARD, HP	
909	*1-626-600-11	PC BOARD, AC OUTLET	
910	*1-628-956-11	PC BOARD, SP TERMINAL	
911	*1-628-951-11	PC BOARD, INPUT	
912	*A-4333-139-A	MOUNTED PCB, EQ MA	
914	1-571-337-11	SWITCH, ROTARY SLIDE	
915	1-571-769-11	SWITCH, ROTARY SLIDE (REMOTE)	
916	1-571-770-11	SWITCH, ROTARY SLIDE (REMOTE)	
917	1-571-771-11	SWITCH, ROTARY SLIDE (REMOTE)	
918	*1-560-242-11	BUS BAR 3P	
919	*1-560-242-61	BUS BAR 2P	
920	⚠1-559-271-11	CORD, POWER	
921	1-506-113-00	SHORT PLUG	
922	1-535-691-11	TERMINAL	
923	1-533-183-11	HOLDER, FUSE	
924	*1-564-505-11	PLUG, CONNECTOR 2P	
925	*1-564-506-11	PLUG, CONNECTOR 3P	
926	*1-564-507-11	PLUG, CONNECTOR 4P	
927	*1-564-508-11	PLUG, CONNECTOR 5P	
928	*1-564-509-11	PLUG, CONNECTOR 6P	
929	*1-564-521-11	PLUG, CONNECTOR 6P	
930	*1-564-321-00	PIN, CONNECTOR 2P	
931	*1-631-317-11	PC BOARD, PRE OUT	
932	*1-564-241-00	PIN, CONNECTOR 4P	
933	*1-564-242-00	PIN, CONNECTOR 5P	
934	*1-535-140-00	BASE POST 19MM (10MM PITCH) 3P	
935	*1-561-652-00	SOCKET, CONNECTOR 12P	
936	*1-560-533-00	PIN, CONNECTOR 12P	
937	1-535-476-11	TERMINAL	
940	1-564-320-00	PIN, CONNECTOR 2P	
941	*1-560-595-21	TERMINAL (WITH BASE)	
CNJ801	⚠1-526-794-11	OUTLET, AC	
F802	⚠1-532-299-00	FUSE, TIME-LAG (T5A)	
F803	⚠1-532-286-00	FUSE, TIME-LAG (T2.5A)	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-3. MAIN CHASSIS ASSEMBLY



Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

No.	Part No.	Description	Remarks
101	4-923-848-01	WASHER (B.S)	
102	7-682-149-15	SCREW, TR	
103	4-309-378-00	WASHER	
104	*4-916-791-01	PLATE, GROUND, 5P	
105	*4-921-402-01	HEAT SINK	
106	4-921-437-01	SCREW (M3X20), TAPPING	
107	*X-4885-928-3	HOLDER (A) ASSY	
108	4-901-949-01	SHEET, INSULATING	
109	4-908-847-01	SHEET, INSULATING	
110	2-371-561-00	BUSHING (P), INSULATING	
111	*4-908-892-01	SPACER	
112	7-682-548-09	SCREW +B 3X8	
113	7-682-549-01	SCREW +B 3X10	
114	7-685-647-79	SCREW +BVTP 3X10 TYPE2 SLIT	
115	7-685-648-79	SCREW +BVTP 3X12 TYPE2 SLIT	
116	7-682-669-09	SCREW +PSW 4X35	
117	7-684-024-04	N 4, TYPE 2	
118	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
119	**X-4885-946-1**	**CHASSIS ASSY, MAIN**	
913	*A-4333-140-A	MOUNTED PCB, MAIN (B)	
938	*1-560-242-31	BUS BAR 5P	
939	*1-628-974-11	PC BOARD, CAPACITOR	
T1	⚠1-449-656-11	TRANSFORMER, POWER	

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description
901	*1-628-959-11	PC BOARD, PW LED
902	*1-628-963-11	PC BOARD, AC SW
903	*A-4410-872-A	MOUNTED PCB, TONE
904	*1-628-954-11	PC BOARD, MUT
905	*1-628-957-11	PC BOARD, JUNCTION
906	*1-628-955-11	PC BOARD, PD
907	*1-628-953-11	PC BOARD, VOLUME
908	*1-628-958-11	PC BOARD, HP
909	*1-626-600-11	PC BOARD, AC OUTLET
910	*1-628-956-11	PC BOARD, SP TERMINAL
911	*1-628-951-11	PC BOARD, INPUT
912	*A-4333-139-A	MOUNTED PCB, EQ MA
913	*A-4333-140-A	MOUNTED PCB, MAIN (B)
914	1-571-337-11	SWITCH, ROTARY SLIDE
915	1-571-769-11	SWITCH, ROTARY SLIDE (REMOTE)
916	1-571-770-11	SWITCH, ROTARY SLIDE (REMOTE)
917	1-571-771-11	SWITCH, ROTARY SLIDE (REMOTE)
918	*1-560-242-11	BUS BAR 3P
919	*1-560-242-61	BUS BAR 2P
920	⚠1-559-271-11	CORD, POWER
921	1-506-113-00	SHORT PLUG
922	1-535-691-11	TERMINAL
923	1-533-183-11	HOLDER, FUSE
924	*1-564-505-11	PLUG, CONNECTOR 2P
925	*1-564-506-11	PLUG, CONNECTOR 3P
926	*1-564-507-11	PLUG, CONNECTOR 4P
927	*1-564-508-11	PLUG, CONNECTOR 5P
928	*1-564-509-11	PLUG, CONNECTOR 6P
929	*1-564-521-11	PLUG, CONNECTOR 6P
930	*1-564-321-00	PIN, CONNECTOR 2P
931	*1-631-317-11	PC BOARD, PRE OUT
932	*1-564-241-00	PIN, CONNECTOR 4P
933	*1-564-242-00	PIN, CONNECTOR 5P
934	*1-535-140-00	BASE POST 19MM (10MM PITCH) 3P
935	*1-561-652-00	SOCKET, CONNECTOR 12P
936	*1-560-533-00	PIN, CONNECTOR 12P
937	1-535-476-11	TERMINAL
938	*1-560-242-31	BUS BAR 5P
939	*1-628-974-11	PC BOARD, CAPACITOR
940	1-564-320-00	PIN, CONNECTOR 2P
941	*1-560-595-21	TERMINAL (WITH BASE)
C101	1-162-282-31	CERAMIC 100PF 5% 50V
C102	1-162-282-31	CERAMIC 100PF 5% 50V
C151	1-162-282-31	CERAMIC 100PF 5% 50V
C152	1-162-282-31	CERAMIC 100PF 5% 50V
C201	1-107-163-00	MICA 47PF 5% 500V
C202	1-130-973-00	FILM 0.022MF 5% 100V
C203	1-124-918-11	ELECT 47MF 20% 63V
C204	1-124-700-11	ELECT 330MF 20% 25V
C206	1-136-304-11	FILM 0.016MF 2% 0
C207	1-136-305-11	FILM 0.056MF 2% 0
C209	1-123-378-00	ELECT 1000MF 20% 63V
C211	1-123-333-00	ELECT 100MF 20% 25V
C212	1-123-378-00	ELECT 1000MF 20% 63V
C214	1-123-381-00	ELECT 2.2MF 20% 63V
C251	1-107-163-00	MICA 47PF 5% 500V
C252	1-130-973-00	FILM 0.022MF 5% 100V
C253	1-124-918-11	ELECT 47MF 20% 63V
C254	1-124-700-11	ELECT 330MF 20% 25V
C256	1-136-304-11	FILM 0.016MF 2% 0
C257	1-136-305-11	FILM 0.056MF 2% 0
C259	1-123-378-00	ELECT 1000MF 20% 63V
C262	1-123-378-00	ELECT 1000MF 20% 63V
C264	1-123-381-00	ELECT 2.2MF 20% 63V
C301	1-136-167-00	FILM 0.15MF 5% 50V
C302	1-130-470-00	MYLAR 820PF 5% 50V
C303	1-130-470-00	MYLAR 820PF 5% 50V
C304	1-130-478-00	MYLAR 0.0039MF 5% 50V
C305	1-130-478-00	MYLAR 0.0039MF 5% 50V
C306	1-130-481-00	MYLAR 0.0068MF 5% 50V
C307	1-130-481-00	MYLAR 0.0068MF 5% 50V
C308	1-136-161-00	FILM 0.047MF 5% 50V
C309	1-136-161-00	FILM 0.047MF 5% 50V
C351	1-136-167-00	FILM 0.15MF 5% 50V
C352	1-130-470-00	MYLAR 820PF 5% 50V
C353	1-130-470-00	MYLAR 820PF 5% 50V
C354	1-130-478-00	MYLAR 0.0039MF 5% 50V
C355	1-130-478-00	MYLAR 0.0039MF 5% 50V
C356	1-130-481-00	MYLAR 0.0068MF 5% 50V
C357	1-130-481-00	MYLAR 0.0068MF 5% 50V
C358	1-136-161-00	FILM 0.047MF 5% 50V
C359	1-136-161-00	FILM 0.047MF 5% 50V
C401	1-107-210-00	MICA 22PF 5% 500V
C402	1-109-619-00	MICA 180PF 5% 500V
C403	1-123-380-00	ELECT 1MF 20% 100V
C404	1-107-202-00	MICA 10PF 0.5PF 500V
C405	1-124-918-11	ELECT 47MF 20% 63V
C406	1-124-918-11	ELECT 47MF 20% 63V
C408	1-124-748-11	ELECT 22MF 20% 100V

Ref.No.	Part No.	Description			
C409	1-130-317-00	FILM	0.068MF	5%	100V
C410	1-107-048-00	MICA	7PF	0.5PF	500V
C411	1-124-130-00	ELECT	100MF	20%	63V
C412	1-124-130-00	ELECT	100MF	20%	63V
C414	1-107-169-00	MICA	100PF	5%	500V
C415	1-107-169-00	MICA	100PF	5%	500V
C416	1-136-161-00	FILM	0.047MF	5%	50V
C417	1-136-161-00	FILM	0.047MF	5%	50V
C418	1-123-378-00	ELECT	1000MF	20%	63V
C419	1-123-378-00	ELECT	1000MF	20%	63V
C420	1-123-376-00	ELECT	330MF	20%	63V
C421	1-123-376-00	ELECT	330MF	20%	63V
C422	1-136-161-00	FILM	0.047MF	5%	50V
C423	1-107-169-00	MICA	100PF	5%	500V
C451	1-107-210-00	MICA	22PF	5%	500V
C452	1-109-619-00	MICA	180PF	5%	500V
C453	1-123-380-00	ELECT	1MF	20%	100V
C454	1-107-202-00	MICA	10PF	0.5PF	500V
C455	1-124-918-11	ELECT	47MF	20%	63V
C456	1-124-918-11	ELECT	47MF	20%	63V
C458	1-124-748-11	ELECT	22MF	20%	100V
C459	1-130-317-00	FILM	0.068MF	5%	100V
C460	1-107-048-00	MICA	7PF	0.5PF	500V
C461	1-124-130-00	ELECT	100MF	20%	63V
C462	1-124-130-00	ELECT	100MF	20%	63V
C464	1-107-169-00	MICA	100PF	5%	500V
C465	1-107-169-00	MICA	100PF	5%	500V
C466	1-136-161-00	FILM	0.047MF	5%	50V
C467	1-136-161-00	FILM	0.047MF	5%	50V
C468	1-123-378-00	ELECT	1000MF	20%	63V
C469	1-123-378-00	ELECT	1000MF	20%	63V
C470	1-123-376-00	ELECT	330MF	20%	63V
C471	1-123-376-00	ELECT	330MF	20%	63V
C472	1-136-161-00	FILM	0.047MF	5%	50V
C473	1-107-169-00	MICA	100PF	5%	500V
C474	1-130-469-00	MYLAR	680PF	5%	50V
C601	1-123-334-00	ELECT	220MF	20%	25V
C602	1-136-153-00	FILM	0.01MF	5%	50V
C603	1-136-157-00	FILM	0.022MF	5%	50V
C604	1-123-333-00	ELECT	100MF	20%	25V
C605	1-124-918-11	ELECT	47MF	20%	63V
C606	1-123-380-00	ELECT	1MF	20%	63V
C607	1-123-378-00	ELECT	1000MF	20%	63V
C608	1-123-369-00	ELECT	4.7MF	20%	50V
C609	1-106-343-00	MYLAR	0.001MF	10%	100V
C610A	1-130-480-00	MYLAR	0.0056MF	5%	50V
C610	1-123-380-00	ELECT	1MF	20%	63V
C611	1-123-356-00	ELECT	10MF	20%	25V
C612	1-106-343-00	MYLAR	0.001MF	10%	100V
C660	1-130-480-00	MYLAR	0.0056MF	5%	50V
C662	1-106-343-00	MYLAR	0.001MF	10%	100V
C701	1-125-502-11	CAP, ELECT	10000MF		63V
C702	1-125-553-12	CAP, ELECT	18000MF		63V
C703	1-125-550-11	ELECT	18000MF		63V
C705	1-136-601-11	FILM	0.01MF	10%	630V
C751	1-125-502-11	CAP, ELECT	10000MF		63V

Ref.No.	Part No.	Description			
C752	1-125-553-12	CAP, ELECT	18000MF		63V
C753	1-125-550-11	ELECT	18000MF		63V
C801	1-161-741-00	CERAMIC	0.001MF	10%	400V
CNJ801⚠	1-526-794-11	OUTLET, AC			
D202	8-719-933-36	ZENER DIODE HZS6B1L			
D203	8-719-200-77	DIODE 10E2N			
D204	8-719-000-26	DIODE US1060M			
D401	8-719-933-41	ZENER DIODE HZS6C3L			
D402	8-719-200-77	DIODE 10E2N			
D403	8-719-200-77	DIODE 10E2N			
D405	8-719-000-26	DIODE US1060M			
D406	8-719-000-26	DIODE US1060M			
D407	8-719-200-77	DIODE 10E2N			
D408	8-719-200-77	DIODE 10E2N			
D409	8-719-000-26	DIODE US1060M			
D410	8-719-000-26	DIODE US1060M			
D411	8-719-000-26	DIODE US1060M			
D412	8-719-000-26	DIODE US1060M			
D413	8-719-000-26	DIODE US1060M			
D414	8-719-000-26	DIODE US1060M			
D415	8-719-000-26	DIODE US1060M			
D416	8-719-000-26	DIODE US1060M			
D417	8-719-921-13	ZENER DIODE HZ2CLL			
D418	8-719-000-26	DIODE US1060M			
D419	8-719-000-26	DIODE US1060M			
D420	8-719-000-26	DIODE US1060M			
D451	8-719-933-41	ZENER DIODE HZS6C3L			
D452	8-719-200-77	DIODE 10E2N			
D453	8-719-200-77	DIODE 10E2N			
D455	8-719-000-26	DIODE US1060M			
D456	8-719-000-26	DIODE US1060M			
D457	8-719-200-77	DIODE 10E2N			
D458	8-719-200-77	DIODE 10E2N			
D459	8-719-000-26	DIODE US1060M			
D460	8-719-000-26	DIODE US1060M			
D461	8-719-000-26	DIODE US1060M			
D462	8-719-000-26	DIODE US1060M			
D463	8-719-000-26	DIODE US1060M			
D464	8-719-000-26	DIODE US1060M			
D465	8-719-000-26	DIODE US1060M			
D466	8-719-000-26	DIODE US1060M			
D467	8-719-921-13	ZENER DIODE HZ2CLL			
D468	8-719-000-26	DIODE US1060M			
D469	8-719-000-26	DIODE US1060M			
D470	8-719-000-26	DIODE US1060M			
D505	8-719-302-07	LED SEL1810A (MUTE)			
D506	8-719-302-07	LED SEL1810A (SOURCE DIRECT)			
D507	8-719-302-07	LED SEL1810A (TONE)			
D601	8-719-200-77	DIODE 10E2N			
D602	8-719-200-77	DIODE 10E2N			
D603	8-719-200-77	DIODE 10E2N			
D604	8-719-000-26	DIODE US1060M			
D605	8-719-000-26	DIODE US1060M			
D606	8-719-000-26	DIODE US1060M			
D607	8-719-300-82	LED SEL2213C (POWER (RED))			
D608	8-719-300-82	LED SEL2213C (POWER (RED))			
D609	8-719-303-00	LED SEL2510C (POWER (GREEN))			
D610	8-719-303-00	LED SEL2510C (POWER (GREEN))			

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description
D611	8-719-303-00	LED SEL2510C (POWER (GREEN))
D612	8-719-000-26	DIODE US1060M
D613	8-719-000-26	DIODE US1060M
D614	8-719-933-57	ZENER DIODE HZS9B2L
D701	8-719-230-02	DIODE 30DF2
D702	8-719-230-02	DIODE 30DF2
D703	8-719-230-02	DIODE 30DF2
D704	8-719-230-02	DIODE 30DF2
D705	8-719-300-27	DIODE CTU-22S
D706	8-719-200-77	DIODE 10E2N
D707	8-719-200-77	DIODE 10E2N
D708	8-719-200-77	DIODE 10E2N
D709	8-719-200-77	DIODE 10E2N
D755	8-719-300-25	DIODE CTU-22R
D756	8-719-200-77	DIODE 10E2N
D757	8-719-200-77	DIODE 10E2N
D758	8-719-200-77	DIODE 10E2N
D759	8-719-200-77	DIODE 10E2N
F802 ⚠	1-532-299-00	FUSE, TIME-LAG (T5A)
F803 ⚠	1-532-286-00	FUSE, TIME-LAG (T2.5A)
IC203	8-759-905-42	IC NE5534P
IC253	8-759-905-42	IC NE5534P
IC601	8-759-111-68	IC UPC1237HA
J101	1-507-831-00	JACK, PIN 6P
J102	1-507-831-31	JACK, PIN 6P (INPUT)
J103	1-507-831-00	JACK, PIN 6P
J104	1-507-831-00	JACK, PIN 6P
J601	1-507-863-51	JACK, LARGE TYPE (HEADPHONES)
J602	1-507-852-00	JACK, PIN 2P (PRE OUT)
L101	1-413-101-00	COIL, INPUT
L102	1-413-101-00	COIL, INPUT
L151	1-413-101-00	COIL, INPUT
L152	1-413-101-00	COIL, INPUT
L401	*1-422-009-13	COIL, AIR-CORE
L402	1-422-261-11	COIL, AIR-CORE
L403	1-422-261-11	COIL, AIR-CORE
L451	*1-422-009-13	COIL, AIR-CORE
L452	1-422-261-11	COIL, AIR-CORE
L453	1-422-261-11	COIL, AIR-CORE
Q201	8-729-214-71	TRANSISTOR 2SK147
Q202	8-729-805-05	TRANSISTOR 2SC3601
Q203	8-729-119-78	TRANSISTOR 2SC2785HFE
Q204	8-729-201-56	TRANSISTOR 2SK246GR2
Q205	8-729-127-53	TRANSISTOR 2SC2275
Q206	8-729-201-56	TRANSISTOR 2SK246GR2
Q207	8-729-167-62	TRANSISTOR 2SC2676
Q208	8-729-375-61	TRANSISTOR 2SD756
Q209	8-729-214-71	TRANSISTOR 2SK147
Q251	8-729-214-71	TRANSISTOR 2SK147
Q252	8-729-805-05	TRANSISTOR 2SC3601
Q253	8-729-119-78	TRANSISTOR 2SC2785HFE
Q254	8-729-201-56	TRANSISTOR 2SK246GR2
Q255	8-729-190-53	TRANSISTOR 2SA985A-P
Q256	8-729-201-56	TRANSISTOR 2SK246GR2
Q257	8-729-113-82	TRANSISTOR 2SA1138
Q258	8-729-371-61	TRANSISTOR 2SB716-D
Q259	8-729-214-71	TRANSISTOR 2SK147
Q401	8-729-203-21	TRANSISTOR 2SK389-GR

Ref.No.	Part No.	Description
Q402	8-729-108-05	TRANSISTOR 2SA1841PA
Q403	8-729-108-05	TRANSISTOR 2SA1841PA
Q404	8-729-699-51	TRANSISTOR 2SA995F
Q405	8-729-802-71	TRANSISTOR 2SA1407-D
Q406	8-729-104-91	TRANSISTOR 2SA1383
Q407	8-729-201-56	TRANSISTOR 2SK246GR2
Q408	8-729-104-18	TRANSISTOR 2SC3514-Q
Q409	8-729-104-18	TRANSISTOR 2SC3514-Q
Q410	8-729-173-13	TRANSISTOR 2SB731
Q411	8-729-203-45	TRANSISTOR 2SC3423
Q412	8-729-104-18	TRANSISTOR 2SC3514-Q
Q413	8-729-104-91	TRANSISTOR 2SA1383
Q414	8-729-127-53	TRANSISTOR 2SC2275
Q415	8-729-190-53	TRANSISTOR 2SA985A-P
Q416	8-729-303-88	TRANSISTOR 2SC3856
Q417	8-729-303-88	TRANSISTOR 2SC3856
Q418	8-729-303-85	TRANSISTOR 2SA1492
Q419	8-729-303-85	TRANSISTOR 2SA1492
Q420	8-729-108-14	TRANSISTOR 2SA988F
Q451	8-729-203-21	TRANSISTOR 2SK389-GR
Q452	8-729-108-05	TRANSISTOR 2SA1841PA
Q453	8-729-108-05	TRANSISTOR 2SA1841PA
Q454	8-729-699-51	TRANSISTOR 2SA995F
Q455	8-729-802-71	TRANSISTOR 2SA1407-D
Q456	8-729-104-91	TRANSISTOR 2SA1383
Q457	8-729-201-56	TRANSISTOR 2SK246GR2
Q458	8-729-104-18	TRANSISTOR 2SC3514-Q
Q459	8-729-104-18	TRANSISTOR 2SC3514-Q
Q460	8-729-173-13	TRANSISTOR 2SB731
Q461	8-729-203-45	TRANSISTOR 2SC3423
Q462	8-729-104-18	TRANSISTOR 2SC3514-Q
Q463	8-729-104-91	TRANSISTOR 2SA1383
Q464	8-729-127-53	TRANSISTOR 2SC2275
Q465	8-729-190-53	TRANSISTOR 2SA985A-P
Q466	8-729-303-88	TRANSISTOR 2SC3856
Q467	8-729-303-88	TRANSISTOR 2SC3856
Q468	8-729-303-85	TRANSISTOR 2SA1492
Q469	8-729-303-85	TRANSISTOR 2SA1492
Q470	8-729-108-14	TRANSISTOR 2SA988F
Q601	8-729-119-76	TRANSISTOR 2SA1175HFE
Q602	8-729-119-76	TRANSISTOR 2SA1175HFE
Q603	8-729-177-42	TRANSISTOR 2SD774-3
Q604	8-729-194-57	TRANSISTOR 2SC945-P
R101	1-246-545-00	CARBON 1M 5% 1/4W
R102	1-246-545-00	CARBON 1M 5% 1/4W
R103	1-246-545-00	CARBON 1M 5% 1/4W
R104	1-246-545-00	CARBON 1M 5% 1/4W
R105	1-246-545-00	CARBON 1M 5% 1/4W
R106	1-246-545-00	CARBON 1M 5% 1/4W
R107	1-247-713-11	CARBON 1K 5% 1/4W
R108	1-247-713-11	CARBON 1K 5% 1/4W
R109	1-247-713-11	CARBON 1K 5% 1/4W
R110	1-247-713-11	CARBON 1K 5% 1/4W
R111	1-246-545-00	CARBON 1M 5% 1/4W
R112	1-247-713-11	CARBON 1K 5% 1/4W
R113	1-247-713-11	CARBON 1K 5% 1/4W
R151	1-246-545-00	CARBON 1M 5% 1/4W
R152	1-246-545-00	CARBON 1M 5% 1/4W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description				
R153	1-246-545-00	CARBON	1M	5%	1/4W	
R154	1-246-545-00	CARBON	1M	5%	1/4W	
R155	1-246-545-00	CARBON	1M	5%	1/4W	
R156	1-246-545-00	CARBON	1M	5%	1/4W	
R157	1-247-713-11	CARBON	1K	5%	1/4W	
R158	1-247-713-11	CARBON	1K	5%	1/4W	
R159	1-247-713-11	CARBON	1K	5%	1/4W	
R160	1-247-713-11	CARBON	1K	5%	1/4W	
R161	1-246-545-00	CARBON	1M	5%	1/4W	
R162	1-247-713-11	CARBON	1K	5%	1/4W	
R163	1-247-713-11	CARBON	1K	5%	1/4W	
R201	1-249-465-11	CARBON	47K	5%	1/4W	
R202	1-247-706-11	CARBON	330	5%	1/4W	
R203	1-247-700-11	CARBON	100	5%	1/4W	
R204	1-249-516-11	CARBON	33	5%	1/4W	
R205	1-247-128-00	CARBON	750	5%	1/4W	
R206	1-247-128-00	CARBON	750	5%	1/4W	
R207	1-249-512-11	CARBON	22	5%	1/4W	
R208	1-247-708-11	CARBON	470	5%	1/4W	
R209	1-249-518-11	CARBON	39	5%	1/4W	
R210	1-247-704-11	CARBON	220	5%	1/4W	
R211	1-247-721-11	CARBON	4.7K	5%	1/4W	
R212	1-214-937-00	CARBON	1M	5%	1/2W	
R213	1-249-844-11	CARBON	56K	1%	1/2W	
R215	1-249-818-11	CARBON	4.7K	1%	1/2W	
R217	1-259-501-11	CARBON	6.8	5%	1/2W	
R218	1-247-739-11	CARBON	100	5%	1/2W	
R219	1-247-704-11	CARBON	220	5%	1/4W	
R220	1-247-725-11	CARBON	10K	5%	1/4W	
R221	1-247-704-11	CARBON	220	5%	1/4W	
R222	1-247-717-11	CARBON	2.2K	5%	1/4W	
R223	1-247-723-11	CARBON	6.8K	5%	1/4W	
R224 ⚠	1-213-086-00	FUSIBLE	120	5%	1W	F
R225	1-247-138-00	CARBON	2K	5%	1/4W	
R251	1-249-465-11	CARBON	47K	5%	1/4W	
R252	1-247-706-11	CARBON	330	5%	1/4W	
R253	1-247-700-11	CARBON	100	5%	1/4W	
R254	1-249-516-11	CARBON	33	5%	1/4W	
R255	1-247-128-00	CARBON	750	5%	1/4W	
R256	1-247-128-00	CARBON	750	5%	1/4W	
R257	1-249-512-11	CARBON	22	5%	1/4W	
R258	1-247-708-11	CARBON	470	5%	1/4W	
R259	1-249-518-11	CARBON	39	5%	1/4W	
R260	1-247-704-11	CARBON	220	5%	1/4W	
R261	1-247-721-11	CARBON	4.7K	5%	1/4W	
R262	1-214-937-00	CARBON	1M	5%	1/2W	
R263	1-249-844-11	CARBON	56K	1%	1/2W	
R265	1-249-818-11	CARBON	4.7K	1%	1/2W	
R267	1-259-501-11	CARBON	6.8	5%	1/2W	
R268	1-247-739-11	CARBON	100	5%	1/2W	
R269	1-247-704-11	CARBON	220	5%	1/4W	
R270	1-247-725-11	CARBON	10K	5%	1/4W	
R271	1-247-704-11	CARBON	220	5%	1/4W	
R272	1-247-717-11	CARBON	2.2K	5%	1/4W	
R273	1-249-577-11	CARBON	11K	5%	1/4W	
R274 ⚠	1-213-086-00	FUSIBLE	120	5%	1W	F
R302	1-249-465-11	CARBON	47K	5%	1/4W	

Ref.No.	Part No.	Description				
R303	1-247-722-11	CARBON	5.6K	5%	1/4W	
R304	1-247-722-11	CARBON	5.6K	5%	1/4W	
R305	1-247-717-11	CARBON	2.2K	5%	1/4W	
R306	1-249-591-11	CARBON	43K	5%	1/4W	
R307	1-247-152-00	CARBON	7.5K	5%	1/4W	
R308	1-249-465-11	CARBON	47K	5%	1/4W	
R309	1-249-465-11	CARBON	47K	5%	1/4W	
R310	1-259-502-11	CARBON	4.7M	5%	1/4W	
R311	1-259-502-11	CARBON	4.7M	5%	1/4W	
R312	1-259-502-11	CARBON	4.7M	5%	1/4W	
R313	1-259-502-11	CARBON	4.7M	5%	1/4W	
R314	1-259-502-11	CARBON	4.7M	5%	1/4W	
R315	1-259-502-11	CARBON	4.7M	5%	1/4W	
R316	1-249-590-11	CARBON	39K	5%	1/4W	
R317	1-249-469-11	CARBON	100K	5%	1/4W	
R318	1-259-502-11	CARBON	4.7M	5%	1/4W	
R319	1-259-502-11	CARBON	4.7M	5%	1/4W	
R352	1-249-465-11	CARBON	47K	5%	1/4W	
R353	1-247-722-11	CARBON	5.6K	5%	1/4W	
R354	1-247-722-11	CARBON	5.6K	5%	1/4W	
R355	1-247-717-11	CARBON	2.2K	5%	1/4W	
R356	1-249-591-11	CARBON	43K	5%	1/4W	
R357	1-247-152-00	CARBON	7.5K	5%	1/4W	
R358	1-249-465-11	CARBON	47K	5%	1/4W	
R359	1-249-465-11	CARBON	47K	5%	1/4W	
R360	1-259-502-11	CARBON	4.7M	5%	1/4W	
R361	1-259-502-11	CARBON	4.7M	5%	1/4W	
R362	1-259-502-11	CARBON	4.7M	5%	1/4W	
R363	1-259-502-11	CARBON	4.7M	5%	1/4W	
R364	1-259-502-11	CARBON	4.7M	5%	1/4W	
R365	1-259-502-11	CARBON	4.7M	5%	1/4W	
R366	1-249-590-11	CARBON	39K	5%	1/4W	
R367	1-249-469-11	CARBON	100K	5%	1/4W	
R368	1-259-502-11	CARBON	4.7M	5%	1/4W	
R369	1-259-502-11	CARBON	4.7M	5%	1/4W	
R401	1-259-503-11	CARBON	4.7M	5%	1/2W	
R402	1-249-673-11	CARBON	1K	5%	1/2W	
R403	1-249-512-11	CARBON	22	5%	1/4W	
R404	1-249-512-11	CARBON	22	5%	1/4W	
R405	1-247-717-11	CARBON	2.2K	5%	1/4W	
R406	1-247-704-11	CARBON	220	5%	1/4W	
R408	1-247-703-11	CARBON	180	5%	1/4W	
R409	1-247-704-11	CARBON	220	5%	1/4W	
R410	1-246-545-00	CARBON	1M	5%	1/4W	
R412 ⚠	1-219-010-11	FUSIBLE	33	5%	1/2W	
R413	1-249-490-11	CARBON	27K	5%	1/2W	
R414	1-247-704-11	CARBON	220	5%	1/4W	
R415	1-246-531-00	CARBON	270K	5%	1/4W	
R416	1-247-740-11	CARBON	120	5%	1/2W	
R417	1-249-486-11	CARBON	12K	5%	1/2W	
R418	1-247-764-11	CARBON	10K	5%	1/2W	
R419	1-259-503-11	CARBON	4.7M	5%	1/2W	
R420	1-249-556-11	CARBON	1.5K	5%	1/4W	
R421	1-247-721-11	CARBON	4.7K	5%	1/4W	
R422 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R423	1-247-717-11	CARBON	2.2K	5%	1/4W	
R424	1-247-718-11	CARBON	2.7K	5%	1/4W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description				
R425	1-247-712-11	CARBON	820	5%	1/4W	
R426 ⚠	1-219-038-11	FUSIBLE	470	5%	1/2W	
R427 ⚠	1-217-995-11	FUSIBLE	8.2	5%	1/2W	
R428 ⚠	1-217-995-11	FUSIBLE	8.2	5%	1/2W	
R429 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R430 ⚠	1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R431 ⚠	1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R432 ⚠	1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R433 ⚠	1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R434 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R435 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R436 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R437 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R438 ⚠	1-247-692-11	CARBON	22	5%	1/4W	F
R439 ⚠	1-247-692-11	CARBON	22	5%	1/4W	F
R440 ⚠	1-247-717-11	CARBON	2.2K	5%	1/4W	F
R441	1-249-460-11	CARBON	15K	5%	1/4W	
R442 ⚠	1-219-002-11	FUSIBLE	15	5%	1/2W	
R443	1-247-727-11	CARBON	10	5%	1/2W	
R444 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R445 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R446	1-247-752-11	CARBON	1K	5%	1/2W	
R447	1-249-482-11	CARBON	4.7	5%	1/2W	
R448	1-249-482-11	CARBON	4.7	5%	1/2W	
R449 ⚠	1-219-002-11	FUSIBLE	15	5%	1/2W	
R450	1-247-752-11	CARBON	1K	5%	1/2W	
R451	1-259-503-11	CARBON	4.7M	5%	1/2W	
R452	1-249-673-11	CARBON	1K	5%	1/2W	
R453	1-249-512-11	CARBON	22	5%	1/4W	
R454	1-249-512-11	CARBON	22	5%	1/4W	
R455	1-247-717-11	CARBON	2.2K	5%	1/4W	
R456	1-247-704-11	CARBON	220	5%	1/4W	
R458	1-247-703-11	CARBON	180	5%	1/4W	
R459	1-247-704-11	CARBON	220	5%	1/4W	
R460	1-246-545-00	CARBON	1M	5%	1/4W	
R462 ⚠	1-219-010-11	FUSIBLE	33	5%	1/2W	
R463	1-249-490-11	CARBON	27K	5%	1/2W	
R464	1-247-704-11	CARBON	220	5%	1/4W	
R465	1-246-531-00	CARBON	270K	5%	1/4W	
R466	1-247-740-11	CARBON	120	5%	1/2W	
R467	1-249-486-11	CARBON	12K	5%	1/2W	
R468	1-247-764-11	CARBON	10K	5%	1/2W	
R469	1-259-503-11	CARBON	4.7M	5%	1/2W	
R470	1-249-556-11	CARBON	1.5K	5%	1/4W	
R471	1-247-721-11	CARBON	4.7K	5%	1/4W	
R472 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R473	1-247-717-11	CARBON	2.2K	5%	1/4W	
R474	1-247-718-11	CARBON	2.7K	5%	1/4W	
R475	1-247-712-11	CARBON	820	5%	1/4W	
R476 ⚠	1-219-038-11	FUSIBLE	470	5%	1/2W	
R477 ⚠	1-217-995-11	FUSIBLE	8.2	5%	1/2W	
R478 ⚠	1-217-995-11	FUSIBLE	8.2	5%	1/2W	
R479 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R480 ⚠	1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R481 ⚠	1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R482 ⚠	1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R483 ⚠	1-217-989-11	FUSIBLE	4.7	5%	1/2W	

Ref.No.	Part No.	Description				
R484 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R485 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R486 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R487 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R488 ⚠	1-247-692-11	CARBON	22	5%	1/4W	F
R489 ⚠	1-247-692-11	CARBON	22	5%	1/4W	F
R490 ⚠	1-247-717-11	CARBON	2.2K	5%	1/4W	F
R491	1-249-460-11	CARBON	15K	5%	1/4W	
R492 ⚠	1-219-002-11	FUSIBLE	15	5%	1/2W	
R493	1-247-727-11	CARBON	10	5%	1/2W	
R494 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R495 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R496	1-247-752-11	CARBON	1K	5%	1/2W	
R497	1-249-482-11	CARBON	4.7	5%	1/2W	
R498	1-249-482-11	CARBON	4.7	5%	1/2W	
R499 ⚠	1-219-002-11	FUSIBLE	15	5%	1/2W	
R500	1-247-752-11	CARBON	1K	5%	1/2W	
R501	1-249-469-11	CARBON	100K	5%	1/4W	
R502	1-249-469-11	CARBON	100K	5%	1/4W	
R551	1-249-469-11	CARBON	100K	5%	1/4W	
R552	1-249-469-11	CARBON	100K	5%	1/4W	
R601	1-247-891-00	CARBON	330K	5%	1/4W	
R602	1-247-887-00	CARBON	220K	5%	1/4W	
R603	1-247-725-11	CARBON	10K	5%	1/4W	
R604	1-249-461-11	CARBON	18K	5%	1/4W	
R605	1-249-606-11	CARBON	180K	5%	1/4W	
R606	1-247-725-11	CARBON	10K	5%	1/4W	
R607	1-247-717-11	CARBON	2.2K	5%	1/4W	
R608	1-249-465-11	CARBON	47K	5%	1/4W	
R609	1-249-465-11	CARBON	47K	5%	1/4W	
R610	1-249-462-11	CARBON	22K	5%	1/4W	
R612	1-247-717-11	CARBON	2.2K	5%	1/4W	
R613	1-247-743-11	CARBON	220	5%	1/2W	
R616	1-247-693-11	CARBON	27	5%	1/4W	
R617 ⚠	1-249-489-11	CARBON	22K	5%	1/2W	F
R618	1-247-750-11	CARBON	680	5%	1/2W	
R619	1-247-750-11	CARBON	680	5%	1/2W	
R620	1-247-750-11	CARBON	680	5%	1/2W	
R621	1-247-749-11	CARBON	560	5%	1/2W	
R622	1-247-749-11	CARBON	560	5%	1/2W	
R623	1-247-749-11	CARBON	560	5%	1/2W	
R624	1-247-749-11	CARBON	560	5%	1/2W	
R625	1-247-749-11	CARBON	560	5%	1/2W	
R626	1-247-749-11	CARBON	560	5%	1/2W	
R627	1-247-749-11	CARBON	560	5%	1/2W	
R628	1-247-749-11	CARBON	560	5%	1/2W	
R630	1-247-727-11	CARBON	10	5%	1/2W	
R631	1-247-255-00	CARBON	4.3K	5%	1/2W	
R632	1-247-255-00	CARBON	4.3K	5%	1/2W	
R633A	1-247-721-11	CARBON	4.7K	5%	1/4W	
R633	1-247-739-11	CARBON	100	5%	1/2W	
R634	1-247-235-00	CARBON	620	5%	1/2W	
R635	1-247-235-00	CARBON	620	5%	1/2W	
R650	1-247-138-00	CARBON	2K	5%	1/4W	
R651	1-247-891-00	CARBON	330K	5%	1/4W	
R652	1-247-721-11	CARBON	4.7K	5%	1/4W	
R653 ⚠	1-212-934-00	FUSIBLE	1	5%	1/2W	F

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description				
R680	1-247-727-11	CARBON	10	5%	1/2W	
R681	1-247-255-00	CARBON	4.3K	5%	1/2W	
R682	1-247-255-00	CARBON	4.3K	5%	1/2W	
R683	1-247-739-11	CARBON	100	5%	1/2W	
R701 ⚠	1-213-086-00	FUSIBLE	120	5%	1W	F
R751 ⚠	1-213-086-00	FUSIBLE	120	5%	1W	F
RT401	1-237-873-11	RES, ADJ, CARBON 100				
RT402	1-237-455-11	RES, ADJ, CARBON 500				
RT451	1-237-873-11	RES, ADJ, CARBON 100				
RT452	1-237-455-11	RES, ADJ, CARBON 500				
RV301	1-238-416-11	RES, VAR, CARBON 150K/150K (BALANCE)				
RV302	1-238-418-11	RES, VAR, CAOBPN 250K/250K (TREBLE)				
RV303	1-238-417-11	RES, VAR, CARBON 25K/500K (BASS)				
RV304	1-237-175-11	RES, VAR, CARBON 120K/120K (ATTENUATOR)				
RY201	1-515-614-11	RELAY				
RY601	1-515-614-11	RELAY				
RY602	1-515-356-00	RELAY				
RY603	1-515-356-00	RELAY				
S101	1-554-879-11	SWITCH, SLIDE (INPUT SELECTOR)				
S102	1-570-593-11	SWITCH, SLIDE (REMOTE TYPE) (INPUT SELECTOR)				
S103	1-570-076-11	SWITCH, SLIDE (REMOTE TYPE) (REC OUT SELECTOR)				
S201	1-554-019-21	SWITCH, SLIDE (REMOTE TYPE) (CARTRIDGE LOAD)				
S301	1-571-773-11	SWITCH, PUSH (2 KEY)(MUTING -20dB)				
S302	1-571-773-11	SWITCH, PUSH (2 KEY)(SUBSONIC)				
S303	1-571-772-11	SWITCH, PUSH (3 KEY)(TONE)				
S304	1-571-774-11	SWITCH, PUSH (1 KEY)(SOURCE DIRECT)				
S305	1-571-772-11	SWITCH, PUSH (3 KEY)(TURNOVER)				
S306	1-571-772-11	SWITCH, PUSH (3 KEY)(TURNOVER)				
S501	1-571-775-11	SWITCH, ROTARY (MODE)				
S601	1-571-776-11	SWITCH, ROTARY (SPEAKERS)				
S801 ⚠	1-554-538-00	SWITCH, PUSH (AC POWER)(1 KEY)				
T1 ⚠	1-449-656-11	TRANSFORMER, POWER				
TM801	1-536-767-41	TERMINAL BOARD, SPEAKER (SPEAKER A)				
TM802	1-536-767-41	TERMINAL BOARD, SPEAKER (SPEAKER B)				

ACCESSORY & PACKING MATERIAL

3-786-728-41	MANUAL, INSTRUCTION	
4-847-802-00	SCREW	
4-915-880-01	SHEET, PROTECTION	
*4-923-860-01	CUSHION	
*4-929-261-01	INDIVIDUAL CARTON	

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Replace only with part number specified.

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